AMENDMENTS TO THE CLAIMS

Claims 1-8 (Cancelled)

9. (**Currently Amended**) A compression refrigeration system ~~including at least~~ configured for use with a refrigerant containing carbon dioxide, the system comprising:

a compressor ~~(1),~~;

a heat rejector ~~(2),~~;

~~an~~ a first expansion ~~means~~unit ~~(3); and~~

a heat absorber ~~(4)~~; and

a stream splitting arrangement extending from the heat rejector at a high pressure side thereof and including a second expansion unit;

wherein the compressor, the heat rejector, the first expansion unit, the heat absorber and the stream splitting arrangement are connected in a closed circulation circuit that ~~may~~ is configured to operate with supercritical high-side pressure; and

wherein the stream splitting arrangement is configured to generate a split stream flow to control superheating of compressor suction gas and further configured to expand the split stream flow from the high pressure side of the heat rejector through the second expansion unit directly to a low pressure side of the heat absorber after heating the compressor suction gas.

~~wherein the system heat pump efficiency can be improved by controlling the compressor suction gas superheat and that carbon dioxide or a refrigerant mixture containing carbon dioxide is applied as the refrigerant in the system.~~

10. (**Currently Amended**) A system ~~System~~ according to claim 9, further comprising:

a heat source operably connected to the compression refrigeration system; and

wherein the stream splitting arrangement is configured to increase ~~the superheat will be increased when~~ the temperature of the compressor suction gas when the temperature of the heat source is above a predetermined level.

11. (**Currently Amended**) A system ~~System~~ according to claim 9, wherein ~~the limitation for~~

the stream splitting arrangement is configured to control superheating of the compressor suction gas, such that it has a temperature that is equal ~~the superheat will be~~to a ~~compressor~~ discharge temperature of the compressor~~, which can not exceed a predetermined level~~.

12.-13. **(Cancelled)**

14. **(Currently Amended)** A system ~~System~~ according to claim 9, wherein the stream splitting arrangement includes a metering valve configured to regulate the split stream flow ~~may be regulated in order~~ to control the superheating of the compressor suction gas ~~superheat~~.

15. **(Currently Amended)** A system ~~System~~ according to claim 9, wherein the stream splitting arrangement includes ~~wherein the~~ a counterflow heat exchanger ~~is used~~ configured to heat the compressor suction gas.

16. **(Currently Amended)** A system ~~System~~ according to claim 9, ~~wherein the counterflow heat exchanger may be a separate unit or the~~ further comprising:

~~internal~~ a first heat exchanger positioned on the high pressure side of the heat rejector ~~if already installed~~.

17. **(New)** A method for the operation of a compression refrigeration system including a closed circulation circuit configured to operate with supercritical high-side pressure, the closed circulation circuit having a compressor, a heat rejecter, a first expansion unit, and a heat absorber, the compression refrigeration system further including a stream splitting arrangement extending from the heat rejector at a high pressure side thereof directly to a low pressure side of the heat absorber, and including a second expansion unit, wherein the compression refrigeration system is configured for use with a refrigerant containing carbon dioxide, the method comprising:

generating a split stream flow through the stream splitting arrangement;

controlling superheating of compressor suction gas via the split stream flow; and

expanding the split stream flow through the second expansion unit after heating the compressor suction gas.

18. (**New**) A method according to claim 17, wherein said controlling of the superheating of the compressor suction gas includes increasing the temperature of the compressor suction gas when the temperature of a heat source is above a predetermined level.

19. (**New**) A method according to claim 17, wherein said controlling of the superheating of the compressor suction gas includes controlling the superheating of the compressor suction gas to a temperature that is equal to a discharge temperature of the compressor.

20. (**New**) A method according to claim 17, wherein said controlling of the superheating of the compressor suction gas includes regulating the split stream flow.

21. (**New**) A method according to claim 17, wherein said controlling of the superheating of the compressor suction gas includes controlling the superheating of the compressor suction gas via a counterflow heat exchanger.

22. (**New**) A method according to claim 17, wherein said controlling of the superheating of the compressor suction gas includes controlling the superheating of the compressor suction gas via a heat exchanger positioned on the high pressure side of the heat rejector.

23 (**New**) A system according to claim 16, further comprising:

a second heat exchanger positioned in the stream splitting arrangement.

24. (**New**) A system according to claim 16, wherein said first heat exchanger is positioned in the stream splitting arrangement.